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ANALYSIS OF INTER-STATE TAX PERFORMANCE

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ABSTRACT :
    The paper has analyzed the inter-state tax performance of the Indian states in terms of state's own tax revenues for the period 2005 to 2016. Ratio of states own tax revenues to gross state domestic product (GSDP) and per capita SOTR are taken as the measure performance or fiscal capacity. By applying the one sample test, we have compared the SOTR to GSDP ratio and per capita SOTR to the national average. States like Andhra Pradesh, Haryana, Karnataka, Kerala, Punjab, and Tamil Nadu are reported with high performance on the basis of both criteria. (i.e.

SOTR to GSDP ratio and per capita SOTR). It is also found that states with low per capita income and low fiscal capacity show relatively high growth rates in SOTR as compared to the states with high per capita income and high fiscal capacity. This is somewhat consistent with the statement of neo-classical theory of growth.
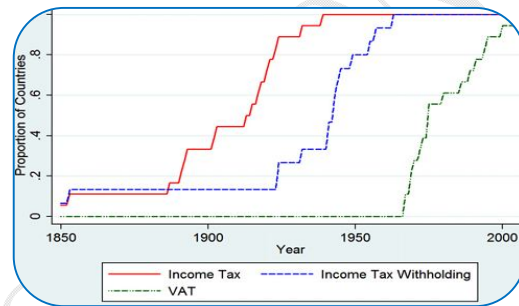
KEYWORDS : *tax performance, Indian States, One Sample t Test.*

1. INTRODUCTION

    Formulation of an objective policy of devolution of central resources to the states involves questions of both equity and efficiency. In other words, such a policy should ensure that states/regions in greater need of funds are given priority, on the one hand, and are given adequate incentive to make fuller utilization of their revenue-raising potentials, on the other. Assessment of relative tax performances of the states becomes a major issue when one tries to evolve an objective policy of devolution of central funds to the constituent states of a country with a federal structure.

    A common measure of tax performance of an economy is the tax-GDP ratio (which essentially measures the proportion of the income generated in the economy that is taxed). In a country like India with a federal structure of governance the constituent states have their own tax jurisdiction defined by the Constitution and the states can decide on their own how much of their taxable capacity they will exploit. Given the taxable capacity, a state's actual tax revenue collection will depend, among other things, on the tax effort made, efficiency of the tax collection machinery and the performance of the state economy. To compare the tax performances of the states in India, one often makes use of the tax-GSDP ratio as the summary measure of the states' tax performance (although it is recognized that GSDP is an inadequate proxy for a state's aggregate tax base as it excludes interstate income transfers). To judge the relative tax performance of states, normally one would order the states in terms of their observed tax-GSDP ratios and to analyze inter-temporal variations in relative performance of states, one would examine how the relative position of individual states changed over the period of time under consideration. However, such an examination of the state-wise tax-GSDP ratio may not reveal much unless the level of per capita real GSDP (PCSDP) of the states concerned remain unchanged over the

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period under consideration. The present chapter aims to analyze the inter-state tax performance of the 27 major states of India for the period, 2005 to 2016.

1. Data and Methodology

The data regarding state own taxes revenues (SOTR) and state domestic product (SDP) has been taken from Statistical Tables of Indian States published by Reserve Bank of India (RBI). The study covers the period of 12 years from 2005 to 2016. In order to compare the inter-state tax performance two distinct methodologies viz. one sample t test and annual compound growth rate have been used.

2. Inter-State Tax Performance

Table 1 shows the inter-state tax performance of the Indian states in terms of state's own tax revenues. Ratio of states own tax revenues to gross state domestic product (GSDP) and per capita SOTR are taken as the measure performance or fiscal capacity. By applying the one sample test, we have compared the SOTR to GSDP ratio and per capita SOTR to the national average. On the basis of the above comparison, we have divided the all 27 states into three categories.

Table 1: Performance of Indian States in Terms of State's Own Tax Revenues (SOTR), 2005 to 2016

Category	States	SOTR/GSDP	State	SOTR/Population
States with high performance	ANDHRA PRADESH	11.04	ANDHRA PRADESH	10344.6
	CHHATTISGARH	12.84	GOA	14453.3
	HARYANA	11.58	GUJARAT	6744.53
	KARNATAKA	15.52	HARYANA	8028.65
	KERALA	12.39	KARNATAKA	7659.74
	MADHYA PRADESH	11.76	KERALA	7640.28
	PUNJAB	11.6	MAHARASHTRA	7087.42
	TAMIL NADU	12.87	PUNJAB	6286.85
	UTTAR PRADESH	12	TAMIL NADU	8183.5
	NATIONAL AVERAGE	**9.37**	**NATIONAL AVERAGE**	**4851.88**
States with average performance	GOA	10.31	HIMACHAL PRADESH	5634.59
	GUJARAT	9.969	SIKKIM	5028.38
	JAMMU AND KASHMIR	11.44	UTTARAKHAND	5425.46
	MAHARASHTRA	10.17		
	ORISSA	9.743		
	RAJASTHAN	11.12		
	NATIONAL AVERAGE	**9.37**	**NATIONAL AVERAGE**	**4851.88**
States with low performance	ARUNACHAL PRADESH	4.98	ARUNACHAL PRADESH	1992.52
	ASSAM	8.802	ASSAM	2269.83
	BIHAR	8.618	BIHAR	1357.4
	HIMACHAL PRADESH	9.07	CHHATTISGARH	4303.73
	JHARKHAND	7.83	JAMMU & KASHMIR	3904.33
	MANIPUR	4.289	JHARKHAND	2420.17
	MEGHALAYA	4.934	MADHYA PRADESH	3315.51
	NAGALAND	2.517	MANIPUR	1139.11
	SIKKIM	6.213	MEGHALAYA	2010.99
	TRIPURA	4.868	NAGALAND	1223.97
	UTTARAKHAND	8.849	ORISSA	3030.65
	WEST BENGAL	7.669	RAJASTHAN	3737.5
			TRIPURA	2330.95
			UTTAR PRADESH	2522.14
			WEST BENGAL	2924.65
	NATIONAL AVERAGE	**9.37**	**NATIONAL AVERAGE**	**4851.88**

Source: RBI

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In the first category, we have included those states which are reported with significantly better performance compared to the benchmark. States like Andhra Pradesh, Haryana, Karnataka, Kerala, Punjab, and Tamil Nadu are reported with high performance on the basis of both criteria. (i.e. SOTR to GSDP ratio and per capita SOTR). States like Goa, Gujarat, and Maharashtra are observed with high performance on the basis of per capital SOTR. But, on the basis of SOTR to GSDP ratio, they are reported with average performance category, we have put those states whose performance indicators do not differ significantly from their respective national averages. There are three states viz. Chhattisgarh, Madhya Pradesh and Uttar Pradesh which come in the category of the states with high performance on the basis of SOTR to GSDP ratio. However, they lose their status if we measure their performance on the basis of per capita SOTR and come in the category of the states with performance. One possible reason of this variation is that they are states with low GSDP and high population. It indicates that their collection of tax revenues from their respective GSDP significantly exceeds the national average. Despite this their per capita tax revenues fall short of the national average due the relative large size of population of these states.

Further, Jammu & Kashmir, Orissa, and Rajasthan demonstrate average performance on the basis SOTR to GSDP ratio and they exhibit poor performance on the basis of per capita SOTR. Similarly, Himachal Pradesh, Sikkim and Uttarakhand demonstrate average performance on the basis of per capita SOTR. However, they are reported with poor performance on the basis of SOTR to GSDP ratio. These three states are the Himalayan states characterized with low population density which improves their performance on the basis per capita SOTR criterion.

Rest of the states fall exclusively in the third category on the basis of both criteria mentioned above. These are the states with significantly low SOTR to GSDP ratio and per capita SOTR as compared to the national average.

Table 2 shows and compares the inter-state performance of Indian states in terms of taxes on income. Two types of income taxes come under the jurisdiction of state government viz. tax on agricultural income and taxes on profession, trades, callings & employment. In order to compare the performance, the various states on the basis of revenues from income tax two criteria which have been used in case of SOTR are adopted: TOI to GSDP ratio and per capita TOI. For this purpose, the mean TOI to GSDP ratio and per capita TOI of a particular state are compared to their respective national averages over the period of time.

Table 2: Performance of Indian States in Terms of Taxes on Income (TOI), 2005 to 2016

Category	States	TOI/GSDP	State	TOI/Population
	ANDHRA PRADESH	0.112	ANDHRA PRADESH	101.39
	ASSAM	0.27	ASSAM	68.1843
	KARNATAKA	0.223	KARNATAKA	107.634
States with high performance	**MADHYA PRADESH**	0.122	MAHARASHTRA	154.045
	MAHARASHTRA	0.231	MANIPUR	77.8217
	MANIPUR	0.305	NAGALAND	113.509
	NAGALAND	0.245	TRIPURA	91.2906
	TRIPURA	0.206	SIKKIM	245.934
	SIKKIM	0.586	WEST BENGAL	45.44
	WEST BENGAL	0.125		
States with average performance	ORISSA	0.101		
	ARUNACHAL PRADESH	**0**	ARUNACHAL PRADESH	0.01
	BIHAR	0.013	BIHAR	2.46
	CHHATTISGARH	0.015	CHHATTISGARH	4.2
	GUJARAT	0.055	GUJARAT	35.20
	GOA	0	GOA	0

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	States		States	
States with low performance	HARYANA	0	HARYANA	0
	JAMMU AND KASHMIR	0	HIMACHAL PRADESH	0
	JHARKHAND	0.032	JAMMU & KASHMIR	**0**
	KERALA	0.007	JHARKHAND	11.57
	MEGHALAYA	0.015	KERALA	4.21
	PUNJAB	0	ORISSA	30.67
	RAJASTHAN	0	MADHYA PRADESH	32.46
	TAMIL NADU	0	MEGHALAYA	6.57
	UTTARAKHAND	0.02	PUNJAB	0
	UTTAR PRADESH	0.007	RAJASTHAN	0.01
			TAMIL NADU	0.01
			UTTARAKHAND	12.64
			UTTAR PRADESH	1.4
	NATIONAL AVERAGE	**0.1**	**NATIONAL AVERAGE**	**42.46**

Source: RBI

The table 2 shows that Andhra Pradesh, Assam, Karnataka, Maharashtra, Manipur, Nagaland, Tripura, Sikkim and West-Bengal are the states with high performance on the basis of TOI to GSDP ratio as well as on the basis of per capita TOI. Madhya Pradesh is reported with high performance on the basis of TOI to GSDP ratio, but on the basis of per-capita TOI, the state is unable to maintain its status as a high-performance state and it comes under the category of the states with low performance due the large size of its population. Rest of the states comes under the category of states with low performance on the basis of both criteria. Most of the states with high per capita income like Haryana and Punjab have no revenues from the taxes on income. In these states, agriculture income is exempted from the income tax. That is the reason why revenues from income tax constitute a small fraction of the state's own tax revenues.

The second main component of the state own tax revenues are taxes on property and capital transaction (TPCT). Table 3 demonstrates the inter-state tax performance in terms TPCT to GSDP ratio and per capita TPCT for the entire period of the study. Andhra Pradesh, Goa, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu and Uttarakhand are the states which are reported with high performance as compared to the national average on the basis of both TPCT to GSDP ratio and per capita GSDP. The comparison is made on the basis of one sample test, Uttar Pradesh and West-Bengal are reported with average performance on the basis of TPCT to GSDP ratio and with significantly low performance on the basis per-capita TPCT. On the other hand, Bihar, Chhattisgarh, Madhya Pradesh and Rajasthan exhibit significantly high performance on the basis of TPCT to GSDP ratio. However, if we measure their performance on the basis of per capita TPCT, they demonstrate significantly poor performance as compared to the national average. The states like Arunachal Pradesh, Assam, Orissa, Jammu & Kashmir, Jharkhand, Manipur, Meghalaya, Nagaland, Sikkim and Tripura are reported with significantly low performance as far as TPCT to GSDP ratio and per capita TPCT are concerned.

Table 3: Performance of Indian States in Terms of Taxes on Property & Capital Transaction (TPCT), 2005 to 2016

Category	States	TPCT/GSDP	States	TPCT/Population
	ANDHRA PRADESH	1.04	ANDHRA PRADESH	972.47
	GOA	1.17	GOA	1785.36
	BIHAR	1.19	GUJARAT	830.972
	CHHATTISGARH	1.22	HARYANA	934.49
	GUJARAT	1.2	KARNATAKA	856.16
	HARYANA	1.38	KERALA	795.74

	State	TCS/GSDP	State	TCS/Population
States with high Performance	KARNATAKA	1.76	MAHARASHTRA	1269.24
	KERALA	1.32	PUNJAB	839.31
	MADHYA PRADESH	1.56	TAMIL NADU	905.207
	MAHARASHTRA	1.81	UTTARAKHAND	586.972
	PUNJAB	1.61		
	RAJASTHAN	1.2		
	TAMIL NADU	1.41		
	UTTARAKHAND	1.02		
States with average Performance	UTTAR PRADESH	1.38		
	WEST BENGAL	0.92		
States with low Performance	ARUNACHAL PRADESH		ARUNACHAL PRADESH	55.2123
	ASSAM	0.14	ASSAM	103.364
	ORISSA	0.4	BIHAR	187.193
	HIMACHAL PRADESH	0.83	CHHATTISGARH	409.667
	JAMMU AND KASHMIR	0.37	HIMACHAL PRADESH	223.201
	JHARKHAND	0.42	JAMMU & KASHMIR	146.808
	MANIPUR	0.5	JHARKHAND	158.682
	MEGHALAYA	0.1	MADHYA PRADESH	438.864
	NAGALAND	0.1	MANIPUR	25.6592
	SIKKIM	0.02	MEGHALAYA	37.8977
	TRIPURA		NAGALAND	9.89001
		0.18	NATIONAL AVERAGE	485.857
		0.24	ORISSA	258.334
			RAJASTHAN	395.953
			SIKKIM	145.445
			TRIPURA	113.152
			UTTAR PRADESH	288.637
			WEST BENGAL	344.283
	NATIONAL AVERAGE	0.91	NATIONAL AVERAGE	485.857

Source: RBI

Table 4: performance of Indian states in terms of Taxes on Commodities & Services (TCS), 2005 to 2016

	State	TCS/GSDP	State	TCS/Population
States with high performance	ANDHRA PRADESH	9.881	ANDHRA PRADESH	9270.77
	CHHATTISGARH	11.6	GOA	12668
	GOA	9.131	GUJARAT	5878.36
	HARYANA	10.2	HARYANA	7094.15
	JAMMU AND KASHMIR	11.02	KARNATAKA	6695.95
	KARNATAKA	13.54	KERALA	6840.32
	KERALA	11.06	MAHARASHTRA	5664.13
	MADHYA PRADESH	10.08	TAMIL NADU	7278.3
	PUNJAB	9.99		
	TAMIL NADU	11.46		

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	NATIONAL AVERAGE	**8.15**	**NATIONAL AVERAGE**	**4263.42**
States with average performance	GUJARAT	8.717	HIMACHAL PRADESH	5411.39
	HIMACHAL PRADESH	8.701	PUNJAB	5447.54
	ORISSA	8.816	SIKKIM	4637
	RAJASTHAN	9.922	UTTARAKHAND	4825.89
	NATIONAL AVERAGE	**8.15**	**NATIONAL AVERAGE**	**4263.42**
States with low Performance	ARUNACHAL PRADESH	4.839	ARUNACHAL PRADESH	1937.3
	ASSAM	8.128	ASSAM	2098.29
	BIHAR	7.413	BIHAR	1167.74
	JHARKHAND	7.295	CHHATTISGARH	3889.87
	MAHARASHTRA	8.129	JAMMU & KASHMIR	3757.52
	MANIPUR	3.885	JHARKHAND	2249.92
	MEGHALAYA	4.823	MADHYA PRADESH	2844.19
	NAGALAND	2.251	MANIPUR	1035.63
	SIKKIM	5.451	MEGHALAYA	1966.53
	TRIPURA	4.42	NAGALAND	1100.58
	UTTAR PRADESH	7.135	ORISSA	2741.65
	UTTARAKHAND	7.806	RAJASTHAN	3341.54
	WEST BENGAL	4.346	TRIPURA	2126.51
			UTTAR PRADESH	1485.37
			WEST BENGAL	1657.9
	NATIONAL AVERAGE	**8.15**	**NATIONAL AVERAGE**	**4263.42**

Source: RBI

TCS is the most important source of states own tax revenues as compared to any other tax. Therefore, comparing the performance of Indian states based on the revenues from TCS is of great significance. For this purpose, Table 4 shows the inter-state performance in terms of TCS to GSDP ratio and per capita TCS for the period of the study. Andhra Pradesh, Goa, Haryana, Karnataka, Kerala and Tamil Nadu demonstrate the high performance as compared to national average on the basis TCS to GSDP ratio and per capita TCS Gujarat and Punjab are the states that demonstrate high performance only on the basis of one criterion mentioned above. However, on the basis of the second criterion, they are reported with average performance. On the other hand, Chhattisgarh, Jammu and Kashmir and Madhya Pradesh are reported with significantly high performance on the basis of TCS to GSDP ratio. But they demonstrate significantly poor performance in terms of per capita TCS. Further, Himachal Pradesh is exclusively reported as the state with average performance in terms of both TCS to GSDP ratio and per capita TCS. In the same row, Orissa Rajasthan, Sikkim, and Uttarakhand exhibit average performance only on the basis one criterion. On the basis of second criterion they come into the category of the states with significantly low performance. The remaining states exclusively fall into the category of poor performance states.

3. ANALYSIS OF GROWTH RATE

One of the short coming of the one sample t-test for comparing the performance of the various states of India in generating their own tax revenues is that it does not take into account the improvements in the fiscal capacity of a state which it has been making over the period of time. The Neo-classical growth theory states that the states with low per capital income and low fiscal capacity will grow at a faster rate as compared to the states with high per capita income and high fiscal capacity. Therefore, they will show a tendency of convergence over time. In order to take this fact into account, we have measured the annual compound growth rates of states own tax revenues of the various states for the period 2005 to 2016 which is demonstrated by Table 5.

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Table 5: Growth Rates of Total Tax Revenue and its Components (2005-2016)

STATES	GROWTH RATE			RANK		
	TTR	SOTR	SCT	TTR	SOTR	SCT
ARUNACHAL PRADESH	23.7	15.2	24.9	1	1	2
MANIPUR	15.1	12	15.8	2	2	3
JAMMU AND KASHMIR	13	11.3	15.1	3	3	4
TRIPURA	10.4	5.73	12.8	4	16	5
MEGHALAYA	10.1	5.73	12.4	5	17	7
ASSAM	9.37	8.21	10.5	6	7	9
JHARKHAND	9.34	7.88	93.6	7	8	1
UTTAR PRADESH	9.05	8.7	9.41	8	6	14
HIMACHAL PRADESH	8.91	7.36	12.5	9	12	6
CHHATTISGARH	8.73	7.54	10.4	10	11	10
WEST BENGAL	8.52	7.57	9.84	11	10	12
KERALA	7.87	7.57	8.95	12	9	16
ORISSA	7.65	6.91	8.36	13	13	17
KARNATAKA	7.17	6.5	9.68	14	14	13
BIHAR	6.65	9.18	5.61	15	5	23
MAHARASHTRA	6.16	5.63	9.14	16	18	15
UTTARAKHAND	6.06	6.46	5.3	17	15	24
NAGALAND	5.94	11.1	2.71	18	4	26
GUJARAT	5.77	5.45	7.13	19	19	19
GOA	5.75	4.33	10.4	20	21	11
HARYANA	5.58	5.41	6.75	21	20	20
PUNJAB	5.41	4.27	11.2	22	23	8
TAMIL NADU	4.58	4.3	5.76	23	22	22
SIKKIM	4.32	-1.1	7.17	24	27	18
RAJASTHAN	3.16	0.3	6.58	25	25	21
ANDHRA PRADESH	2.48	1.83	4.09	26	24	25
MADHYA PRADESH	-4.2	-0.78	-13.3	27	26	27

Source: RBI

Table 5 shows the annual compound growth rates of state's own tax revenues and its various components for the 27 seven states of India. It is interesting to note that states with low per capita income and low fiscal capacity (viz. Arunachal Pradesh, Manipur, Jammu & Kashmir, Nagaland, Bihar, Uttar Pradesh, Assam, Jharkhand etc.) show relatively high growth rates in SOTR as compared to the states with high per capita income and high fiscal capacity (i.e. Maharashtra, Gujarat, Haryana, Goa, Tamil Nadu, Punjab and Andhra Pradesh). This is somewhat consistent with the statement of neo-classical theory of growth. There are only three states i.e. Rajasthan, Madhya Pradesh and Sikkim which break the presumption of the Neo-classical growth theory. All of these three states show the negative growth rate in their SOTR over the period of the study. In case of Rajasthan falling revenues from taxes on property & capital transaction (TPCT) and taxes on commodities & services (TCS) are mainly responsible for the negative growth rate of SOTR. In case of Madhya Pradesh, the negative growth rate is mainly attributed to the declining revenues from TCS. As far as Sikkim is concerned the negative growth rate is mainly caused by the huge decline in the revenues from income tax. It is evident from the fact that the share of revenues from TOI in Sikkim's SOTR which was 32 percent in 2005 reduced to 1.39 percent in 2016. Therefore, there is a strong heed for these three states to enhance and improve their fiscal capacity and tax efforts.

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4. CONCLUSION

The paper has analyzed the inter-state tax performance of the Indian states in terms of state's own tax revenues. Ratio of states own tax revenues to gross state domestic product (GSDP) and per capita SOTR are taken as the measure performance or fiscal capacity. By applying the one sample test, we have compared the SOTR to GSDP ratio and per capita SOTR to the national average. On the basis of the above comparison, we have divided the all 27 states into three categories. In the first category, we have included those states which are reported with significantly better performance compared to the benchmark. States like Andhra Pradesh, Haryana, Karnataka, Kerala, Punjab, and Tamil Nadu are reported with high performance on the basis of both criteria. (i.e. SOTR to GSDP ratio and per capita SOTR). States like Goa, Gujarat, and Maharashtra are observed with high performance on the basis of per capital SOTR. But, on the basis of SOTR to GSDP ratio, they are reported with average performance category, we have put those states whose performance indicators do not differ significantly from their respective national averages. There are three states viz. Chhattisgarh, Madhya Pradesh and Uttar Pradesh which come in the category of the states with high performance on the basis of SOTR to GSDP ratio. However, they lose their status if we measure their performance on the basis of per capita SOTR and come in the category of the states with performance. Further, Jammu & Kashmir, Orissa, and Rajasthan demonstrate average performance on the basis SOTR to GSDP ratio and they exhibit poor performance on the basis of per capita SOTR. Similarly, Himachal Pradesh, Sikkim and Uttarakhand demonstrate average performance on the basis of per capita SOTR. However, they are reported with poor performance on the basis of SOTR to GSDP ratio. Rest of the states fall exclusively in the third category on the basis of both criteria mentioned above. These are the states with significantly low SOTR to GSDP ratio and per capita SOTR as compared to the national average.

One of the shortcomings of the one sample t-test for comparing the performance of the various states of India in generating their own tax revenues is that it does not take into account the improvements in the fiscal capacity of a state which it has been making over the period of time. . In order to take this fact into account, we have measured the annual compound growth rates of states own tax revenues of the various states for the period 2005 to 2016. It is found that states with low per capita income and low fiscal capacity (viz. Arunachal Pradesh, Manipur, Jammu & Kashmir, Nagaland, Bihar, Uttar Pradesh, Assam, Jharkhand etc.) show relatively high growth rates in SOTR as compared to the states with high per capita income and high fiscal capacity (i.e. Maharashtra, Gujarat, Haryana, Goa, Tamil Nadu, Punjab and Andhra Pradesh). This is somewhat consistent with the statement of neo-classical theory of growth.

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